

What is claimed is:

(Claim 1) A cathode circuit for an imaging tube comprising:

a plurality of high voltage elements; and
at least one voltage-clamping device coupled between said plurality of high voltage elements and preventing occurrence of overvoltage transients in the cathode circuit.

(Claim 2) A circuit as in claim 1 wherein said plurality of high voltage elements have a low operating voltage therebetween.

(Claim 3) A circuit as in claim 1 wherein said at least one clamping device is a varistor.

(Claim 4) A circuit as in claim 3 wherein said varistor is a metal oxide varistor.

(Claim 5) A circuit as in claim 1 wherein said at least one voltage-clamping device comprises a plurality of feedthrough holes.

(Claim 6) A circuit as in claim 1 wherein said at least one voltage-clamping device is a resistive jumper.

(Claim 7) A circuit as in claim 1 wherein said at least one voltage-clamping device is formed of a resistive material.

(Claim 8) A circuit as in claim 1 wherein said at least one voltage-clamping device is a terminal board formed of resistive or semi-resistive material.

(Claim 9) A circuit as in claim 1 wherein said at least one voltage-clamping device is a voltage clamping device or a current clamping device.

(Claim 10) A circuit as in claim 1 wherein said at least one voltage-clamping device performs as an insulator when voltage potential between said plurality of high voltage elements is less than a predetermined differential voltage level.

(Claim 11) An imaging tube comprising:

a plurality of high voltage elements; and
at least one voltage-clamping device coupled between said plurality of high voltage elements and preventing occurrence of overvoltage transients in the imaging tube.

(Claim 12) An imaging tube as in claim 11 further comprising:

a driving circuit; and
a cathode coupled to said driving circuit via said plurality of high voltage elements.

(Claim 13) An imaging tube as in claim 11 further comprising:

a driving circuit; and
a high voltage receptacle coupled to said driving circuit via said plurality of high voltage elements.

(Claim 14) An imaging tube as in claim 11 wherein said plurality of high voltage elements exist within at least one of an imaging tube housing, insert, casing, cable assembly, cathode, flat connector, and high voltage receptacle.

(Claim 15) An imaging tube as in claim 11 wherein said plurality of high voltage elements are a plurality of high voltage leads.

(Claim 16) An imaging tube as in claim 11 wherein said at least one voltage-clamping device allows current flow between said plurality of high voltage leads when voltage potential between said plurality of high voltage leads is greater than a predetermined voltage level.

(Claim 17) An imaging tube as in claim 11 wherein said at least one voltage-clamping device is formed of a resistive or semi-resistive material.

(Claim 18) An imaging tube as in claim 11 wherein said at least one voltage-clamping device performs as an insulator when voltage potential between said plurality of high voltage elements is less than a predetermined differential voltage level.

(Claim 19) A cathode circuit comprising a plurality of high voltage elements having at least one discharge gap with a predetermined width, said plurality of high voltage elements discharging across said at least one gap when a voltage potential across said at least one gap is greater than a predetermined voltage level.

(Claim 20) An imaging tube comprising:

a cathode cup;
a cathode terminal board coupled to said cathode cup via a first set of high voltage elements;
a high voltage receptacle coupled to said cathode terminal board via a second set of high voltage elements; and
a plurality of voltage clamping devices coupled to and preventing occurrence of overvoltage transients across said first set of high voltage elements and said second set of high voltage elements.